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CENTRAL INTELLIGENCE AGENCY

WASHINGTON, D.C. 20505

2 DEC 1974

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X Ref.
76-1076

The Honorable James R. Schlesinger
The Secretary of Defense
Washington, D.C. 20301

Dear Jim:

Your memorandum of 2 November--which refers to the meeting you had with George Carver and others on relative US and Soviet scales of military effort--is being given careful attention. I understand your concern and we will do our best to help. There are a number of studies either now in progress or just getting underway which address some of the problems of comparability you outlined, and there are likely to be others which we can start after fuller consultation with your staff. I understand some meetings have already been held to elaborate on your needs and what can be done to meet them.

We are in a good position to begin some new work along the lines you suggest. We have just completed two basic and comprehensive studies on the overall Soviet military accounts which can serve as the basis for examining different arrays of US and Soviet programs and forces. These papers will be published soon. They take into account new information learned about Soviet forces during the past year. Other studies are in progress on ruble-dollar ratios, the Soviet reserve and mobilization system, and on trends in the complexity of Soviet weapons. These studies will contribute to a better understanding of important differences in the US and Soviet military establishments.

Wholly new approaches aimed specifically at your concern about incomparabilities in contributions to military strength are also being considered. They will take longer to complete, and they will involve new areas of research requiring more detailed knowledge of US defense accounts and procurement practices than now exists in CIA. For this reason we will wish to accept your offer of help from the Department

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of Defense in our attempt to break new ground. The details needed on US programs cannot always be derived directly from existing DoD publications, so that the designation of a senior action officer in several DoD organizations to assist in the task would be helpful. We will probably need to turn to several DoD components, including PA&E, I&L, the DoD Comptroller, and the comptroller offices of the individual services.

I should note that progress will not be even on all areas of analysis you listed. In some cases, such as direct civilian employment by the Soviet Ministry of Defense, success will depend on obtaining data that have so far eluded us.

I enclose for your information a brief paper prepared by the Office of Strategic Research--my action office for supporting you on this problem--on some possible ways to proceed in relating scales of effort to trends in military strength. It focuses on that portion of procurement which contributes to incremental strength, and on changes in value of inventory of military capital over time. It also indicates some of the areas where support will be needed from you to obtain US data arrayed to achieve comparability. The paper is preliminary and illustrative only at this point, but it would be useful to get your reaction before proceeding along the lines it suggests. If you believe this approach is worth pursuing, please arrange to have senior action officers designated as suggested above. The CIA action officer is

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Sincerely,

/s/ Bill

W. E. Colby
Director

Enclosure:
Military Power and
Defense Budgets

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18 November 1974

MEMORANDUM

Military Power and Defense Expenditures

Introduction

Concern over comparisons of trends in US and Soviet military power has heightened in recent years as the USSR--now acknowledged to be about on a par with the US in many areas--continues to press forward in expanding and modernizing its forces. The appearance of faster Soviet rates of acquisition of new weapons compared to the US, accomplished with only moderate growth in total Soviet defense spending, has raised serious questions for US policymakers about the longer term power relationship.

The relationship between scales of military effort in the two countries--as measured by annual defense expenditures--and the contribution each makes to its military strength has never been satisfactorily resolved because of limitations of both military science and economics. This is particularly true when comparisons are made on highly aggregated data on spending, such as major budget and force categories, and so long as the emphasis is placed on the annual flow of resources rather than on the portion of that flow that contributes to incremental strength.

The following discussion outlines the nature of the analytical problem and offers alternative ways to calculate and array comparative US and Soviet data to provide a better understanding of the trends in military capabilities.

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Most Commonly Used Comparisons

Overall, according to CIA calculations, the equivalent dollar costs required to equip, operate, and maintain Soviet forces have exceeded US defense outlays in 1971 and in every year since then. This is true for each of the major military missions-- strategic attack and defense; general purpose forces; and R&D--and for the major resource category of equipment procurement. Moreover, the gap has been widening since 1971. US outlays exceed our estimates for the USSR only in the category of command and general support, but new studies may show that we have been underestimating Soviet activity in this category. The following table shows these most frequently used comparisons for 1973:

Dollar Measures of Selected US and Soviet
Defense Activities: 1973*
(Billions of 1973 Dollars)

	US	USSR	Ratio USSR/US
TOTAL DEFENSE RESOURCE PACKAGE		91.8	
<u>Mission Basis</u>			
Resources for Strategic Attack		7.6	
Resources for Strategic Defense		5.6	
Resources for General Purpose Forces		22.4	
Resources for RDT&E		11.9	
Resources for Command and General Support		44.2	
<u>Resource Category Basis</u>			
Procurement (distributed among missions)		21.3	
Operating (distributed among the above missions)		57.5	
(Of which) Military Personnel Outlays		(39.2)	
O&M Outlays		(18.3)	

*US DoD budget data have been adjusted to achieve comparability with calculations of dollar value of Soviet resources in particular categories. Activities for which strict comparability cannot be achieved are placed in the Command and General Support category.

These data, with a great deal of underlying detail and covering a longer time span, are published annually by CIA, and a new updated volume will soon be available. US policymakers have suggested, however, that such information could be presented in more useful forms, and analyses based on such calculations could be pushed further than has yet been done.

This memorandum approaches the problem of military-economic trends and their meaning for US policymakers by presenting selective data--still preliminary--in a somewhat different form than previous CIA studies. The intent at this time is not to present a comprehensive new analysis of the scales of military effort of both nations, but rather to point out possible new directions for research and data presentation. If this proves to be useful and interesting to the policymaker, a more comprehensive effort along these lines will be undertaken. Some redirection of emphasis in CIA's research program will be necessary, along with additional support from the Department of Defense to supply comparable US data.

Some Methodological Caveats

Before proceeding a number of points should be noted. These though obvious to most readers, are often overlooked or misunderstood by those unfamiliar with the process used to produce the data on Soviet military resource patterns.

- Dollar data used to reflect Soviet activities are calculations of what it would cost the US to duplicate ruble outlays if US costs were used. Actual Soviet forces, weapons, and operating levels are costed with dollar price weights.
- With the exception of estimated R&D outlays, the results should be viewed as the cost implications of observed and estimated physical forces and activities. Announced Soviet budgetary data are used to estimate R&D spending.
- Price data are expressed in constant 1973 prices to adjust for the effects of inflation on measures of resource trends.

Spending Flows and Military Capabilities

Comparisons such as those presented in the earlier tabulation can be useful in describing resource distribution patterns and as indicators of military program decisions and priorities. But, in this form they deal only with annual flows of resources and provide little insight into the cumulative effect of these flows on the size and quality of military forces.

This suggests that it would be useful to identify --in considerable detail--those portions of annual military spending that contribute to growth in military potential as opposed to those flows required just to maintain existing levels of power, and those which make little if any contribution whatsoever. Next, it would be necessary to show how this increment affects the quantity and quality of military stocks and forces over selected time periods. Such studies will, however, present new conceptual and data problems. In particular, the precise relationships between resource inputs to military utility of the output have never been determined--and will probably never be in a strict sense. But if analysis is to proceed, some approximations and working assumptions must be accepted at least to a degree which permits meaningful comparisons of relative trends and major structural asymmetries--and what they portend for the future.

Varying levels of difficulty will be encountered in calculating the flows for different programs and forces. Naval, air, and ballistic missile forces probably offer the easiest targets for study. The ground combat forces will present a far greater data challenge, and the present prognosis for this kind of analysis on the rear services and RDT&E is unfavorable because of complexity and data limitations.

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The next step would be to look at changes in inventories of selected force elements over time. To illustrate this, some gross preliminary calculations have been made for the USSR covering changes over the past decade in inventories in Major Naval Surface Combatants and for aircraft in Frontal Aviation. The results are presented below. These data should be taken as approximate only, pending more work to establish appropriate valuation concepts, meaningful time intervals, and standardized inventory counting practices.

Naval Surface Combatants

If Soviet ships built during 1964-73 had been constructed in US shipyards, Soviet investment in major naval surface combatants would have fluctuated around a level of about \$0.7 billion per year with no discernable growth trends. During this period units with a total original valuation of just over \$6 billion were added to the fleet, while units withdrawn were valued at just over \$3 billion. The value of total inventory grew from about \$8.3 billion to about \$11.5 billion in US cost terms. All valuations are at original cost plus costs of any major conversions. No attempt was made at this time to adjust cost to age of vessel, under the working assumption that so long as a unit is maintained in combat status it retains its original value.

During the period under consideration the total inventory of ships in this category grew from about 200 to nearly 250, including ships in reserve status. The average cost per ship increased from about \$40 million to about \$46 million. Increments to the force included new guided missile light cruisers and destroyers, improved patrol escort vessels, and two Moskva guided missile helicopter ships. Withdrawals from inventory included four Sverdlov light cruisers, eight Krupnyy guided missile destroyers (six of which have undergone major conversions and reentered the inventory as Kanins), a number of Kotlin destroyers and Riga and Kola escorts.

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These calculations suggest that perhaps as much as 50 percent of the dollar valuation of naval surface ship procurement results in one way or another in increments to inventory value in the USSR. Further study will be needed to determine whether this relationship will remain stable when different time periods (1970-1974, for example) are examined. Also, when developing comparable data for the US, a much more careful determination will have to be made on comparable ways to handle various categories of US and Soviet inactive ships.

Frontal Aviation (Tactical Air)

In the ten years between 1964 and 1973 the inventory of tactical aircraft in the USSR grew from about 3300 to about 4600, an increase of about 40 percent. During the period the mix of aircraft was also changing, with higher performance systems replacing those of lesser performance which were being withdrawn from inventory.

Using the measure of cumulative average cost per aircraft at the production volume actually reached, the value of inventory more than doubled during the period--from about \$3.5 billion to over \$7.5 billion. The replacement of older aircraft with newer and more expensive ones increased the average cost per aircraft by about 50 percent.

There is a question, however, as to whether this is the most appropriate cost concept to use for inventory valuations. For aircraft in particular, average cost is very much a function of volume of production, and it is questionable to use this cost to reflect relative military utility. It is possible, for example, that an inferior aircraft produced in small quantities could have a higher average cost than a far better one produced in the thousands.

For this reason an alternative calculation--using the cumulative average for each aircraft at a production volume of 200--was made. In this case, using the same data for numbers and mix of aircraft, the value of inventory increased by 70 percent instead of doubling. The average cost per aircraft increased by about 20 to 25 percent. The reason for this effect is that the

1964 mix of aircraft was heavily weighted by units produced in the thousands--and therefore had reached a point on the cost learning curve which gave them a relatively low average cost--compared with more recently acquired aircraft which on the average were produced in fewer numbers. In both cases, however, the value of inventory as measured by costs increased faster than the numerical size of the inventory.

Total cumulative procurement of tactical aircraft during the ten year period is a more difficult computation than was the case for surface naval combatants. CIA's existing accounts for these systems does not now permit a quick calculation of total procurement less operating spares for engines, so that the ratio of value of inventory to total procurement can only be roughly approximated. Rule of thumb calculations suggest that the ratio is of the same order of magnitude as for naval vessels--that is, about 50 percent of procurement for tactical aircraft in the past ten years has gone to increment inventory. This approximation could change, however, with more thorough study.

As in the case of naval vessels, more detailed scrutiny is necessary before definitive conclusions can be drawn. In all cases to be studied, moreover, comparable US data will be needed to evaluate the relative trends in force potential.

Conclusions

While there are obvious limitations in the data in their existing form, it appears that CIA's present method of calculating the cost implications of deployed forces can be made compatible with analysis of changes in year to year inventory of many major types of weapons systems. We can get a good start on the Soviet portion of the study within present manpower levels, but it will take time.

There is the risk that consumers will place greater reliance on the apparent precision of absolute values computed than the data warrant, but that is often the case even with our present estimates. We will simply have to continue to warn against invalid types of conclusions in the same way we do now.

Much work remains to be done just in computing and arraying the data for the USSR and for sorting out conceptual problems of inventory valuation. Soviet and US data must be produced in comparable formats and in conceptually equivalent terms.

If this can be done, some more meaningful conclusions could be drawn about competitive trends in the use of economic resources for military ends, than is now possible.

CIA is not in a position--either with numbers of analysts or special expertise in US accounting practices--to compile the necessary data for both the USSR and the US. We can, however, work closely with appropriate DoD components to ensure that we are preparing the data in strict conformance to agreed criteria.

The entire Soviet military effort will not yield to this type of analysis. There are data problems for some major categories of land warfare units and the entire R&D effort for which there is no apparent solution at this time.

TRANSMITTAL SLIP		DATE 27 November 74
TO: <i>ABC</i> Director of Central Intelligence		
ROOM NO. 7D5607	BUILDING	
REMARKS: <div style="border: 1px solid black; padding: 10px; margin: 10px; border-radius: 50%; transform: rotate(-15deg);"> <p><i>OK - but I hate to think of the way the US figures might turn out if PX and other creature comforts for our forces are weighed too heavily -</i></p> </div>		
FROM: Deputy Director for Intelligence		
ROOM NO. 7E44	BUILDING	EXTENSION <div style="border: 1px solid black; width: 50px; height: 20px;"></div>

FORM NO. 241
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REPLACES FORM 36-8
WHICH MAY BE USED.

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